THE MEDICAL COLLEGE OF GEORGIA
The Health Sciences University of the State of Georgia

TODAY

Summer 1988 Volume 17, Number 2

Medical College of Georgia Hospital and Clinics

The Hospital and Clinics are part of the Medical College of Georgia's longstanding tradition of excellence in health care. That tradition began in 1828 when the Medical College of Georgia was founded by an idealistic country doctor, Milton Antony. Through the years, the hospital has grown to become a regional center for patient care, education and research. In this issue of *Medical College of Georgia Today,* you are invited to learn more about some of that development, to share our pride in serving Georgia and to preview our plans to serve a growing patient population.

We begin the issue with a brief history of our growth from a few rooms in the city hospital through the opening of Eugene Talmadge Memorial Hospital in 1956 to plans for a new specialized care/outpatient care facility and children's medical center. Along with that growth has developed a refocusing of emphasis in hospital service — from traditional secondary care to ambulatory care and sophisticated specialized care. This trend is examined in "Shifting into the 21st Century."

Other stories explore some of the programs that properly reflect these changes: the state's first Level 1 trauma service, a new device offered through MCG's otolaryngology clinic to help certain hearing impaired patients and the Southeast's first computerized diagnostic service for genetic birth defects. Pain management is the subject of a story on that program in oral surgery and on plans to expand the program in other disciplines.

We also meet some of the people who help make this hospital. One of them is Dr. Spencer Brudno, a neonatologist whose fascination with premature newborns led to his study of their respiratory problems. Others include a physician assistant, a nurse and an occupational therapist.

All of these stories bear witness to our continuing dedication to excellence. With your support, we will carry that tradition into the next century.

Sincerely,

R. Edward Howell

R. Edward Howell
Executive Director
Medical College of Georgia
Hospital and Clinics

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The Medical College of Georgia is the health sciences university of the University System of Georgia. Focusing on health care education, research and patient care, the Augusta-based institution consists of MCG Hospital, more than 80 support clinics, statewide outreach programs and the Schools of Allied Health Sciences, Dentistry, Graduate Studies, Medicine and Nursing.

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Hospital continues to stretch boundaries.

Building on the Past

A sense of history permeates Telfair Street in Augusta. Its homes and churches, having outlasted one generation after another, seem to lure visitors into the past.

One building in particular has staked a claim to a noteworthy slice of history. It is the first home of the Medical College of Georgia.

Great expectations abounded from the day the doors opened almost 160 years ago.

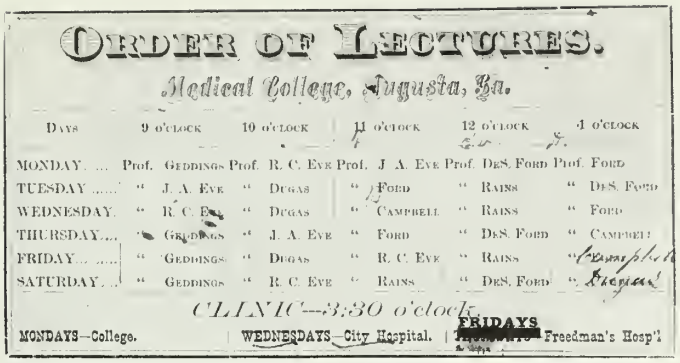
MCG founder Milton Antony, a doctor from Wilkes County, Ga., never anticipated anything short of excellence when he and colleague Joseph Adams Eve began teaching apprentices in several rooms of Augusta's City Hospital in 1826.

Two years later, Dr. Antony pushed for the charter of a state medical academy in which a bachelor of medicine degree would be awarded after a year of studies. On Dec. 20, 1828, Gov. John Forsyth signed the charter. The school opened on Oct. 1, 1829, with seven students.

In 1835, the school moved from its City Hospital classrooms into its home on Telfair Street. The land was leased from the Academy of Richmond County, and architect Charles B. Cluskey

Above: *City Hospital, circa 1893.* Below: *Surgical instruments of Dr. Henry F. Campbell (faculty member from 1842 to 1891).*

Dr. Milton Antony.



ORDER OF LECTURES.

Medical College, Augusta, Ga.

Days	9 o'clock	10 o'clock	11 o'clock	12 o'clock	1 o'clock
MONDAY	Prof. Geddings	Prof. R. C. Eve	Prof. J. A. Eve	Prof. Des. Ford	Prof. Ford
TUESDAY	" J. A. Eve	" Dugas	" Ford	" Rains	" Des. Ford
WEDNESDAY	" R. C. Eve	" Dugas	" Campbell	" Rains	" Ford
THURSDAY	" Geddings	" J. A. Eve	" Ford	" Des. Ford	" Campbell
FRIDAY	" Geddings	" Dugas	" R. C. Eve	" Rains	" Campbell
SATURDAY	" Geddings	" R. C. Eve	" Rains	" Des. Ford	" Dugas

CLINIC—3:30 o'clock.

MONDAYS—College. WEDNESDAYS—City Hospital. FRIDAYS [illegible] Freedman's Hosp'l.

Faculty lecture schedule, 1877.

drafted the building plans.

The Greek Revival-styled building has been one of Augusta's prides ever since. The MCG Foundation recently has leased it and plans a $1.4 million renovation.

The building served the school well into the Civil War and beyond, but around the turn of the century, the MCG faculty realized it needed to be replaced. The school's downtown location was perennially congested, and the growing student body needed more room. And the building had fallen into chronic disrepair.

The same was true of City Hospital, and when Augusta's Lamar Hospital for black patients burned in 1911, the wheels were set in motion for construction of a new teaching hospital.

In 1913, MCG moved to the four-story Tuttle-Newton building, formerly the Augusta Orphan Asylum. The building, now demolished,

Class of 1911 poses in front of Old Medical College.

Old University Hospital opened in 1915.

Dr. G. Lombard Kelly

was located between the new and old University hospitals and provided many times the space of the Cluskey building.

Two years later, the Augusta-owned University Hospital was dedicated. The 275-bed facility included the Lamar wing for blacks and the Barrett wing for whites. Similarly, Augusta offered a Lamar nursing school for blacks and the Barrett nursing school for whites. The combination of the new teaching hospital and school resulted in "the very best teaching plant south of Baltimore," MCG Dean William H. Doughty Jr. said at the time.

A lot of history unfolded in those buildings during the next 40 years. Faculty offices were in the basement, and such world-renowned doctors as endocrinologist Robert B. Greenblatt, neuropsychiatrist Hervey Cleckley, reproductive physiologist G. Lombard Kelly

Newton Building. Home of MCG from 1913 to 1954.

Evolution of physical plant:* Above left: *Old University Hospital (center), Dugas and Murphey buildings (foreground), Newton Building (background).* Above right: *Talmadge Hospital (background), replaced University (center) as MCG teaching hospital in 1956.* Right: *Talmadge (left) shortly before addition of Sydenstricker wing.

and hematologist Virgil P. Sydenstricker there unlocked secrets of science that would change the course of medicine.

The basement also housed a cafeteria, affectionately known as the "Tavern."

Experimental dog surgery was performed on the third floor. "The dogs were brought in by the city pound, and the

building didn't have any elevators. I remember them carrying those dogs up three flights of stairs," recalled Dr. Lois Ellison, vice president of planning for the MCG Hospital and Clinics. Dr. Ellison enrolled at MCG in 1943 and has been here ever since.

The campus was enlarged in 1937 with construction of the Dugas building, followed shortly thereafter by the Murphey building, both of which housed basic sciences classrooms and labs.

The Jennings wing for private patients was added to the hospital in 1945, but MCG was rapidly outgrowing the facility.

"University Hospital was a very fine clinical facility, but it was just no longer large enough. It couldn't meet our expanding needs," Dr. Ellison said.

Also, school administrators were anxious to construct a state-supported hospital. University was the source of endless squabbles (most involving unpaid bills and management) between MCG and Augusta.

Dr. Kelly, then dean of the school, got the ball rolling. He was named president in 1950, when MCG separated from the University of Georgia.

In 1954, MCG moved out of the Newton building, and two years later, Dr. Kelly's dream became a reality: Eugene Talmadge Memorial Hospital opened. "Dr. Kelly certainly spearheaded the entire process," Dr. Ellison said. "He did not retire until he was sure we would have a new teaching facility. Then, Dr. (Edgar) Pund (Dr. Kelly's successor as president) carried his work forward."

The complex included the Pavilion to house interns and residents, Residences I and II to house students, and a building for treatment of alcoholics. The G. Lombard Kelly administration building was opened around the same time.

The hospital was dazzling except for some notable exceptions: it included neither emergency nor outpatient facilities.

"The administration thought we didn't need those," Dr. Ellison said. "They thought University could take care of that. Talmadge was built as an acute-care hospital without emergency services."

The hospital's dedication coincided with the move of the nursing school from Athens to Augusta. Dean Louise Grant began two programs with 12 students in March 1956. The building for treatment of alcoholics was converted into the nursing school, complete with dormitories featuring "beau parlors."

Construction proceeded at breakneck pace in the next few years. The hospital's research wing opened in 1961, followed the next year by the library. The Schools of Allied Health Sciences and Dentistry opened by the end of the decade, and MCG acquired the old University Hospital property shortly thereafter.

The Carl T. Sanders Research and Education building and dental clinical services structure were completed in 1971, and the Veterans Administration Medical Center, connected to MCG by an enclosed walkway, opened soon afterward.

Next came the outpatient clinic in 1973; a nearby motel was bought the next year and converted into outpatient offices.

The Virgil P. Sydenstricker wing of the hospital was completed in 1976, "exactly 20 years after Talmadge," Dr. Ellison said. The wing added 240 beds and increased research potential. A radiation therapy center was completed and surgical suites were enlarged.

What lies ahead for the campus?

MCG physical plant, 1988.

"It's just so obvious that what we need now are more outpatient facilities," Dr. Ellison said. "I think it's part of the changing condition of medicine that more and more care is being shifted to outpatient services. Also, we have a very critical need for more intensive care beds, and a need for more emergency care services."

Progress is under way on all three counts. Hospital executive director R. Edward Howell announced in March that conceptual plans have been developed for two new clinical facilities to enhance outpatient, emergency, trauma and critical care capabilities.

"We're seeing a very clear shift in the health care environment away from the traditional inpatient setting," Mr. Howell said. "In anticipation of the continuation of that trend, we need facilities to meet outpatient needs."

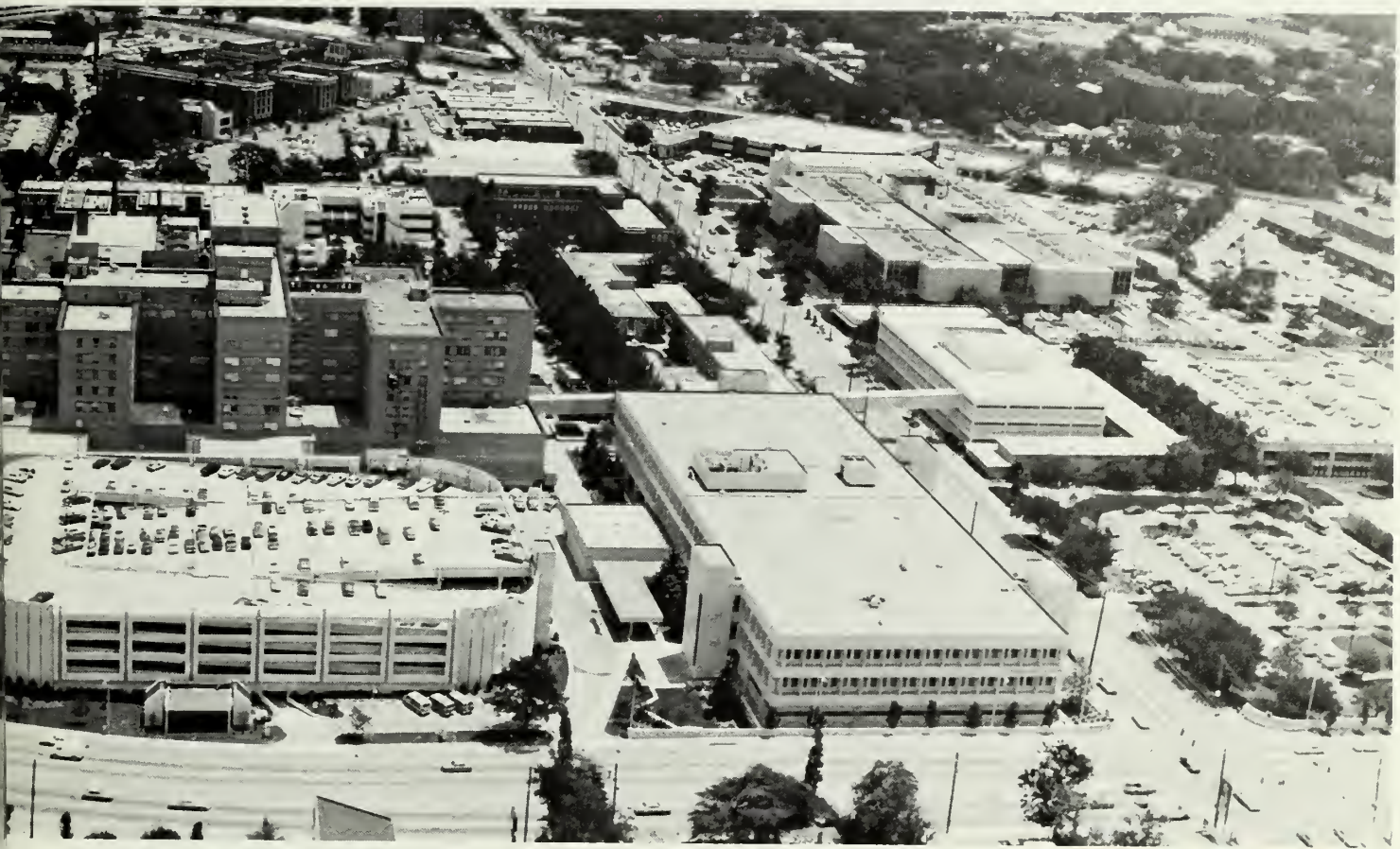
The plans call for a $37 million general obligation bond issue, which the Georgia General Assembly is expected to vote on in 1989.

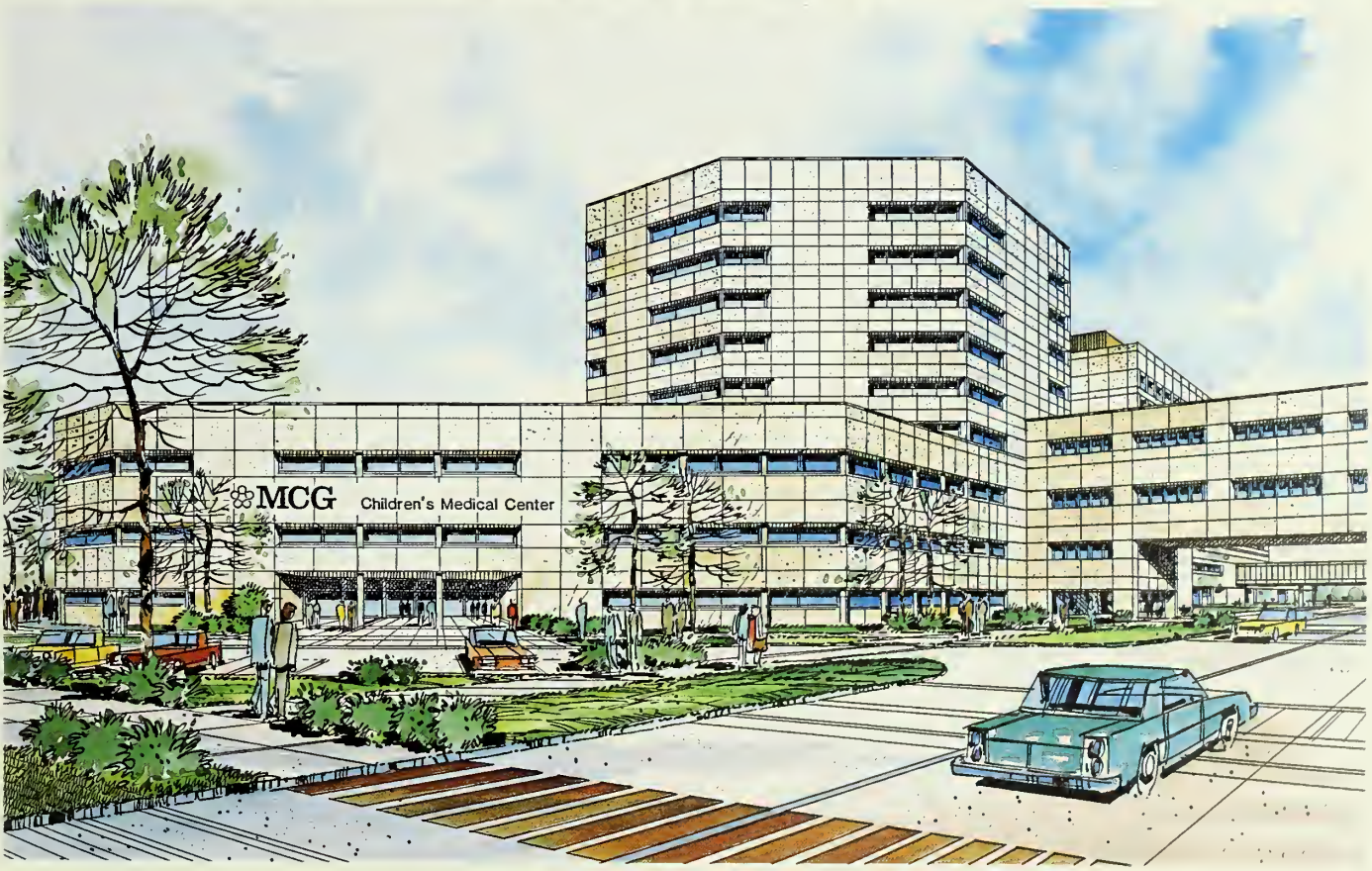
"It should be emphasized that much has yet to be done, but we're proceeding in a timely manner with what needs to be done," Mr. Howell said. He anticipates that the project will be completed in about two years.

Another high priority at MCG is an enlarged, possibly free-standing children's medical center. "I really believe (a free-standing) children's medical center will be a reality," Dr. Ellison said. "The state of Georgia really deserves that." ■

—Christine Deriso

Artist's conceptualization of Children's Medical Center.




MCG
Children's Medical Center

ICUs, specialized care reflect changes in hospital service.

Shifting into the 21st Century

When Eugene Talmadge Memorial Hospital opened in 1956, it was a center for the care of polio, chest diseases and cancer. Intensive care and emergency units were nonexistent.

Today, the Medical College of Georgia Hospital and Clinics boasts 32 adult intensive care beds and expects to double that number by 1991. The hospital is also home to the state's first Level One Regional Trauma Center.

Talmadge Hospital was built to increase the number of health care professionals in Georgia, said Dr. Rufus Payne, the hospital's first administrator. In the years after World War II the number of physicians in the state could not meet the population's demand for care. In 1949, "the state health department, who'd been developing Hill-Burton (legislation), realized even more the desperate need for more training and for more people in medicine, and they agreed to build the hospital," he said.

That year, the legislature authorized the construction of Eugene Talmadge Memorial Hospital on the MCG campus and hired the architectural firm of Gregson and Ellis of Atlanta. Dr. Herman Smith of Chicago, a hospital planning consultant, was called in to work with Medical College president Dr. Lombard Kelly and the Medical College faculty to develop a program for the hospital.

Dr. Payne became involved in the project in 1952 when plans were nearing completion. "I came to see primarily that the hospital was built under the plans they'd developed," he said.

After graduating from MCG in 1933, Dr. Payne had gone on to Johns Hopkins to earn a degree in public health. During the war he was assigned to the state health department and became involved in the department's Agricultural/Industrial Development Board for post-war planning. Among the board's plans was to develop district hospitals in Georgia, one of which was to be built at MCG.

"I was pretty familiar with what they wanted and was greatly impressed with the plans for the development of the medical center," he said.

In June 1956, Talmadge Memorial Hospital opened with more than 400 beds to treat patients and to train health care professionals.

"We tried to get . . . patients that we needed the students, the interns and the residents to see. There was a great deal of pressure to bring in patients with particular problems . . . we tried to get a proper distribution between all types of problems," Dr. Payne said.

The top priorities were to provide a clinical education for students as well as to provide services that Georgians could not get in their own communities. Those criteria for admissions are still in place at today's 540-bed facility.

Although priorities have not changed in 30 years, the practice of medicine has. One example is the demand for intensive care units. The MCG Hospital and Clinics has 32 adult intensive care beds, and conceptual plans for a specialized care center, part of a $37 million facilities plan, will double that number.

Talmadge had no ICUs. "No one had ICUs at that time," Dr. Payne said. They did, however, have special areas for post-surgery patients. And, seriously ill patients were placed in rooms nearest the nursing stations to allow close

Talmadge Hospital, ca. 1958. **Inset: *Dr. Rufus Payne, first hospital administrator.***

Artist's conceptualization of proposed ambulatory care center (view from Harper St.). Inset: Dr. Charles Linder meets with R. Edward Howell.

attention, he said.

Although Talmadge Hospital had a designated area for emergency patients, emergency admissions weren't commonplace. Today, MCG's trauma center is integral to the operations of the hospital.

When it opened in 1981, the center received 180 trauma patients. In fiscal year 1986, the facility treated 989 patients. Today, the overall survival rate of trauma patients, excluding those with irreversible head injuries, is better than 90 percent.

During the 1950s, the hospital treated polio patients for the southeastern United States, Dr. Payne said. The facilities were equipped with iron lungs and provided services for polio patients including hydrotherapy, teachers for school children and a large physical therapy unit, he said. Today, vaccinations have made polio epidemics a thing of the past.

In 1956, the hospital had the only high voltage X-ray therapy unit in this area for cancer treatment. Special services included a chest disease service, a heart and lung lab, a heart diagnostic clinic, a cardiac surgery service and a research lab. A separate 40-bed center was also established for the treatment of alcoholism.

The constant flow of new technology is bringing rapid change to medicine. That flow creates a climate where health care leaders must look to the future, said R. Edward Howell, executive director for MCG Hospital and Clinics.

"We have the capacity to do things we couldn't do before," said Dr. Charles Linder, chief of staff. "We're able to do more for patients today, but it requires a great deal more resources."

"We design facilities for today, but we must look down the road to the next 25 years," Mr. Howell said. "We must continue to monitor the changing health care needs of our society. We're looking to the year 2,000. Change can occur rapidly and we need to have the vision to anticipate change, and perhaps even influence it."

To meet these needs, conceptual plans have been developed for two new clinical facilities. Plans call for the construction of an ambulatory care center and a specialized care center to enhance outpatient, emergency, trauma and critical care capabilities.

Health care consultants Robert Douglass and Associates, who have planned expansions for about 65 academic medical centers like MCG, and the Atlanta architectural firm of Jova, Daniels and Busby have been hired on the project, Mr. Howell said.

"We have a constant, dynamic process of planning and resource allocation," Dr. Linder said. In the process, future needs are identified and evaluated according to which programs have the most immediate need and which programs will most likely be successful, he said. "Then we allocate our resources towards those programs. We have to go with our strengths."

Other programs that may be implemented or expanded include pain management, coordinated cancer treatment, a diabetes center, epilepsy surgery, bone marrow transplantation, lithotripsy and a second pediatric cardiology unit, Dr. Linder said.

In an academic medical center, administrators evaluate change by its usefulness to all aspects of the institution. "We need to have facilities that enable us to teach, (to) discover and to care," Mr. Howell said. "The Hospital and Clinics are the patient care focus for this campus."

The teaching aspect of the mission is an extremely important aspect in facilities planning, Mr. Howell said. "Since we're training (students) for the future, we need to provide facilities that promote that training, as well as patient care," he said. "Students and residents here will be trained to deliver care in the environment they're likely to encounter."

How the patient receives care is also extremely important, Dr. Linder said. "Our commitment is to the patient and all our work is to promote that commitment. That's the most important part of our job." ■

—Karin Calloway

Understanding Chronic Pain

Specialists cooperate to understand and treat pain.

A common complaint from patient to doctor. A personal, subjective experience. And today, many doctors see it as a science.

The subject is pain.

Most commonly seen by doctors as a symptom of something else, pain is not a new problem, said Dr. Edwin D. Joy Jr., professor and chairman of oral and maxillofacial surgery in the Medical College of Georgia School of Dentistry.

The School of Dentistry is taking a relatively new approach in the management of chronic pain. And a newly arrived director of pain management has plans to launch a similar program in the Hospital and Clinics.

The approach does not involve one department or one particular discipline. It involves many specialists: oral

Relieving pain is a major concern for dentists, says Dr. Edwin Joy, chairman of oral and maxillofacial surgery in the School of Dentistry.

surgeons, craniomandibular specialists, neurologists, neurosurgeons and behavioral specialists.

This team approach is used when patients come to the School of Dentistry clinics with "the complaint of pain as the presenting symptom," Dr. Joy said.

Chronic pain is seen as a multifactoral problem in dentistry, Dr. Joy said. For that reason, each specialist on the interdisciplinary team examines the patient independently and makes an evaluation. "A person who's good at pain management is the person who is empathetic and listens to their patient and hears how they feel about the pain," Dr. Joy said.

After examinations are complete, the team meets to discuss the patient and to establish a diagnosis. "If we don't have a diagnosis, we don't treat," Dr. Joy said. Whatever the outcome of their combined efforts, the doctors try to give the patient insight into the cause or causes of their pain, he said.

Relieving a patient's pain has always been a great concern among dentists, Dr. Joy said. "Two areas that we normally deal with as dentists are intraoperative pain and post-operative pain," he said.

Pain during dental treatments, which dentists call intraoperative pain, is considered an emotional issue, Dr. Joy said. "People feel like their whole being lives inside of their face. It's an enormously psychologically loaded area."

"The mouth is an emotional center," Dr. Joy said. "It's where we take in breath and nutrition. It's an erogenous zone; through it we communicate and tell people how we feel," he said.

Such emotions can take over when a dentist approaches the mouth for dental treatment. Thus, "a person amplifies a relatively small stimuli into a large pain experience," he said.

Dental treatments generally involve a lot of perceived pain, Dr. Joy said. When a dentist performs a treatment, the patient generally perceives the pain as greater than it probably is, he said.

Dental researchers work to find new ways to ease intraoperative pain. One involves the use of intravenous sedation with any procedures that the patient would perceive as painful, Dr. Joy said. Immediately before the procedure is performed, the doctor starts an IV, generally a combination of a narcotic and Valium or Versed, he said. In three or four minutes, the patient is sedated, and the procedure can be performed. An hour after the procedure, the patient feels fine and can be driven home.

Dr. Rudolph de Jong envisions an interdisciplinary approach to pain management.

Post-operative pain also takes special management, Dr. Joy said. Since patients perceive the pain as very intense, oral surgery is a model often used by drug companies in conducting research on painkillers, he said.

A pain management program using the same team approach is also in the works for the Medical College of Georgia Hospital and Clinics.

Plans for the interdisciplinary pain management program are in the early stages, said Dr. Rudolph de Jong, an anesthesiologist who specializes in the physiology and pharmacology of pain and who joined the MCG faculty May 1 to direct the program. Dr. de Jong has held several positions in academic medicine and most recently was called back into service in the Army Medical Corps.

Although most of the planning for the program is incomplete, Dr. de Jong said he is certain of one thing—that MCG is the right place for such a program. "An interdisciplinary center like MCG provides an array of specialists that few places outside of a university environment can provide."

As at the School of Dentistry, patients with chronic pain will be seen by a varied group often including neurologists, neurosurgeons, anesthesiologists, and maxillofacial, behavioral medicine and nursing specialists.

Dr. de Jong understands the frustrations of patients with chronic pain and the elusive causes. He has worked with pain patients as senior consultant at the University of Cincinnati Pain Management Center.

Pain patients "have (generally) been seen by a variety of different disciplines and they have not been able to get adequate relief, at least in their own minds, of this pain," Dr. de Jong said.

He understands the odds against completely eliminating their pain. "Clearly, we will not have many true cures where we can make these patients totally free of pain," he said. "So often I have told people not to expect us to cure their pain. What we're shooting for is to give them 50 percent pain relief and to help them cope with the remaining pain as best we can through medications, procedures, behavioral modification and human compassion to help these people learn to better live with their pain."

"A real handicap (in managing chronic pain) is that we can't measure pain because it is a very personal experience," Dr. de Jong said. "Pain depends on your own interpretation."

Behavioral medicine specialists are important members of the interdisciplinary team, Dr. de Jong said. Patients who have had long-term pain often slip into a chronic pain syndrome, using their pain to achieve other goals such as getting more attention or not having to work hard, he said. "A good psychiatrist or psychologist can pick this up very quickly," he said.

"The behavior pattern is changed by pain so part of the treatment is behavioral modification to help these patients cope . . . We're talking about a rehabilitative effort that includes physical rehabilitation and also readapting these people to come back into real life. To bring them back into the work force and to give them pride again in being a citizen."

Nursing support also plays a key role in the treatment of pain patients, Dr. de Jong said. "They (nurses) are very important in helping the patients understand what's going on. They can provide counseling and can help the patients as much as the physician, really," he said. ■

—Karin Calloway

Computerized Sleuthing

Doctors across the Southeast have an ally in birth defect diagnosis service at the Medical College.

It was a scene familiar to clinical geneticists. Stumped for the definition of a patient's peculiar birth defect, a group of them sat swapping clues at a meeting of SERRG, the Southeastern Regional Genetics Group.

Dr. David Flannery, a medical geneticist at the Medical College of Georgia, sat before a computer keyboard, patiently entering features of the case as his colleagues argued over each one.

Then it came to him: the elusive birth defect was ablepharon macrostomia syndrome. Among other characteristics, the syndrome is marked by a lack of eyelids.

"There's only one report of this, and I just happened to have seen it," said Dr. Flannery, director of the division of medical genetics in the MCG Department of Pediatrics.

It's not unusual that geneticists brainstorm together in hopes that shared information may yield some answers about genetic birth defects. They may spend hours, too, searching medical literature for reports on particular defects.

Often, one person's chance experience — a doctor who has treated a similar case — provides the solution.

Dr. David Flannery examines slides of a patient with unknown genetic defect.

Dr. Flannery is not content to leave solutions to chance. Pooling money from a federal grant, the March of Dimes and the MCG School of Medicine, he launched a computerized diagnostic service in January to serve physicians in the SERGG region: Florida, Georgia, Alabama, Mississippi, Tennessee, Kentucky and the Carolinas.

Genetic birth defects are grouped by syndromes or recognizable patterns of features, Dr. Flannery said. The type known as Down's syndrome, which combines mental retardation with certain physical traits, occurs as often as one in 700 births. Others are rarer.

"So many (defects) we see may occur one time in every 50,000 births or even less often than that," Dr. Flannery said. "It would be hard for every geneticist to be acquainted with them all."

Which is precisely why a computerized search can mean the difference between hours in the stacks and minutes at a keyboard.

Using one of two databases (with a

combined reference of about 1,200 syndromes), Dr. Flannery types in the features of the mystery syndrome. The program then searches its files for any possible syndromes with those traits. In three or four minutes, it suggests a possible condition and includes other features to look for to confirm a diagnosis. This information plus references can be printed out.

An "unknown" registry is a file of case descriptions not matched with syndromes. Dr. Flannery distributes it to other geneticists who may recognize a description and uncover a new syndrome.

Since January, three doctors have sent inquiries to Dr. Flannery. One from a Tampa, Fla., doctor resulted in two possible diagnoses and recommendations for further testing. So far, Dr. Flannery has had no follow-up contact with the doctors.

Unless the referring doctor is not a geneticist, Dr. Flannery sees no more of these mystery patients than a photograph. In his clinical work, however, he travels to Fort Gordon, Waycross, Savannah and Athens each month or two to see patients.

Parents of children with birth defects have many questions for a geneticist, Dr. Flannery said.

"You want to know what (the defect) is. You want to know why it happened. You want to know what else might be wrong and if it's something that may happen again," he said.

"The only way we can answer these questions is through an accurate diagnosis," he said.

Among cases at MCG, computerized diagnosis has solved 15 percent of the mystery syndromes that account for up to half of children born with multiple birth defects. An accurate diagnosis may not lead to a "cure," but it can mean an end to false hope, useless tests and unproven therapies, Dr. Flannery said.

"You try to leave people with some hope but at the same time you want to leave them with realistic expectations," he said.

Sometimes help is available. A case in point is the Down's child. Down's syndrome can be diagnosed as early as two weeks after birth, Dr. Flannery said. The child can then undergo infant stimulation therapy, which can involve sessions with physical or occupational therapists as well as simple exercises parents can do at home. ■

— Gwen Corinth

Dr. David Flannery discusses the prognosis with parents of a child with Down's syndrome.

How Genetic Defects Happen

Three or four babies out of every 100 are born with birth defects. The common defects include Down's syndrome, congenital heart disease, dislocated hip, cleft lip and palate and spina bifida. Approximately half of all birth defects are genetic, according to Medical College of Georgia geneticist Dr. David Flannery.

The children often seen by geneticists are those born with multiple defects — about one percent of all births.

A genetic birth defect can occur when parents share a defective gene or can result from a chromosomal problem. Each parent has 23 pairs of chromosomes, which carry thousands of genes, the transmitters of hereditary characteristics.

A defect may occur because part of a chromosome is missing or because the chromosome has an extra part. For example Down's occurs when one parent contributes an extra number 21 chromosome.

Examining a blood sample under a microscope can reveal where the defect lies — if it is in the chromosome. Chromosomal defects produce many defective genes, while a genetic defect may result from a single defective gene. Chromosomes are visible through a microscope. Single genes are not, and thus genetic abnormalities cannot be traced, Dr. Flannery said.

"All we can see is the malformation in the body," he said.

That is why genetic defects are diagnosed from experience with past cases, he said.

Prenatal testing in a woman whose family history includes a known genetic condition can provide her information to use in deciding whether to terminate the pregnancy. Amniocentesis is one test in which fluid drawn from the amniotic sac surrounding the fetus is tested for abnormalities. Another is ultrasound, in which the doctor can search the ultrasound image for a physical abnormality in the fetus. ■

— Gwen Corinth

Sounds Like Success

Bone conduction means better hearing for certain patients.

A new bone conduction hearing device now available at the Medical College of Georgia has been given the Henry Nicholas Josey seal of approval.

"I think my old one is not better than this one. My new one is better," says the 7-year-old who prefers to be called Hank. "I hear better."

The first-grader from Washington County, Ga., put aside the bone aid hearing device he's worn since age two weeks.

"I'm mad at it. It drives me nuts. That old head band keeps giving me half a headache."

Otolaryngologist Dr. Stanton Erwin readies 7-year-old Hank Josey for a hearing test as his mother Brenda Josey watches.

Hank was born with abnormal outer ears and complete blockage of his external hearing canals. That means his outer ears are not able to capture sound and initiate the hearing process.

To hear, sound waves must travel to the eardrum where they vibrate the three hearing bones which stimulate the inner ear.

The hearing bones — malleus, incus and stapes — are commonly known as hammer, anvil and stirrup because of their shapes.

The stapes or stirrup moves in and out of an opening to the inner ear, vibrating fluid in the column of the cochlea, the snail-shaped organ of hearing.

The cochlea or inner ear then converts sound waves into nerve impulses that are sent to the auditory parts of the brain.

Hank has a conductive hearing loss, involving a problem with relaying sound to the inner ear.

Hank's old hearing device is attached to a tight head band. A microphone and amplifier receives and amplifies sound waves which vibrate the bones of the skull and so stimulate the inner ear.

February 26, Hank became the first patient at the Medical College of Georgia Hospital and Clinics to receive the Xomed Audiant Bone Conductor.

Traditional bone aids work for patients with conductive hearing loss, and patients are glad to have them, said Dr. Stanton A. Erwin, a Medical College of Georgia otolaryngologist with a special interest in hearing.

But in patients like Hank who have no nerve damage, these new devices can provide essentially normal hearing in the ear fitted with the device, he said.

The device works through a nickel-sized bone screw containing a magnet which is implanted in the bone in the hairline behind the ear. The procedure to implant the screw can be done using local anesthesia in adults, but Hank received general anesthesia.

The bone screw cannot be detected once the site heals. The surgical site is given six to eight weeks to heal so that bone can grow in around the screw and hold it securely.

April 20, Hank was fitted with the outer at-the-ear device. He also could have opted for a body aid that would slip in his pocket.

The at-the-ear device contains a microphone, amplifier and a magnet.

A solid steady attraction exists between the two magnets and holds the outer device in place. It also allows vibrations created by sound waves to pass between the magnets and in turn vibrate the bone encasing the inner ear.

"The metal is in the bone," Dr. Erwin explains. "The bone aid Hank wore before was like talking through a pillow. This is more like having a rod going through the skin. You don't lose the energy, especially the high frequency energy. His bone aid gave him acceptable hearing."

For Hank, acceptable hearing means he has more than kept up with his fellow first-graders. He used to tease his friends by putting his old aid on his nose to show them he could still hear with it.

Brenda and Hollan Josey never really worried about Hank growing up different.

The first six months of his life were the hardest, when there was uncertainty about whether Hank could hear, Mrs. Josey said.

Once diagnosed, his inability to hear without assistance didn't change the way he was raised.

"We just played with him, read to him. We made sure that he heard. He had trouble with a few sounds when he was learning to talk, but we would work on it," she said of her precocious child.

"He was overstimulated as a baby," she said, laughing as Hank shares his views on his new hearing device and the fact that what he really wants is food. "I'll die if I don't eat," he tells her.

The new bone conduction hearing device means Hank should have essentially normal hearing even in the hard-to-catch frequency ranges such as the high keys on a piano, bells, cymbals, and women's voices on the telephone.

It also means no more squeaking feedback and no more tight head band giving him "half a headache" and potentially causing sores.

"The biggest difference to Hank is that in this very compact little package he has improved hearing," Dr. Erwin said.

The MCG otolaryngologist says a very select population of people like Hank will benefit from this device which was recently approved by the Food and Drug Administration.

When Hank had his implanted, only about 200 of the devices had been used in the United States.

But for certain patients, it is the only other option besides the cumbersome bone aid.

One broad category of those patients is those who have had numerous, unsuccessful operations for chronically draining ears. When the canal fills with fluid and cannot drain, the hearing bones will not move and the conductive hearing process is blocked.

Hank is a perfect example of another kind of patient most helped by this device: people with excellent nerve potential and terrible conductive problems that can't be surgically corrected.

The 7-year-old had three surgical procedures in an attempt to open a canal through which sound waves could pass.

Hank Josey models the bone conduction hearing device that gives him virtually normal hearing.

But each time, scarring closed the surgically-created canal.

"A lot of times we try to rebuild the ossicular (hearing) chain so that they don't have to wear anything at all," Dr. Erwin said. "That is still the preferred way of doing things, because there are so many neat little fancy tricks we can do to make that kind of thing work most of the time. This is another reason this is not going to be something for everybody," Dr. Erwin said.

Hank's parents were considering his fourth surgical procedure when the FDA approved the new hearing device for people ages 7 through adulthood.

Dr. Erwin says more patients could use this device if it were found to benefit patients with one totally deaf ear.

The device could be used to pick up sound waves missed by the deaf ear and pass them to the good ear by bone stimulation. "For some reason, the brain can sort out what is coming to it by bone and what is coming to it by air," Dr. Erwin said.

The deaf ear is not yet an indication for using the bone conduction device, but it is being studied, Dr. Erwin said.

Another option the Medical College of Georgia Hospital and Clinics now offers to patients is the cochlear implant.

This implant is for patients with nerve or inner ear damage. It also is implanted behind the ear, but contains a coil of wire which creates an electrical current from sound waves and sends the current to the inner ear.

"This puts an electrical current inside the cochlea that stimulates the nerves that are still there and ends up giving patients sound awareness with a mechanical kind of noise," Dr. Erwin said.

"Patients describe it as a mechanical electronic buzzing type sound that has pulsation when people speak. Patients can learn through training themselves to get auditory cues from what they are listening to," he said.

"But this does not give you normal hearing. It gives you sound awareness so you do not step out in front of a bus," Dr. Erwin said.

The cochlear implant also can result in a dramatic improvement in the patient's ability to read lips. "It gives you just enough of a hint of what kind of sound is coming out that you can tell the ambiguous things the lips are doing," he said.

A very few patients can discriminate sound well enough to be able to talk on the telephone, but those results cannot be promised, Dr. Erwin said.

Patients with nerve or inner ear damage may trace their deafness to infections that kill nerves in the cochlea or a fracture of the inner ear caused by trauma.

Patients born with major nerve hearing loss are not good candidates for cochlear implants.

"The pre-lingually deaf don't know anything about sound," Dr. Erwin said. "You can stimulate nerves and they can tell something is going on but they have no auditory memory of what sound is like."

Rather, the perfect candidate is someone who suddenly loses his hearing because of infection or trauma and is highly motivated to learn to hear again, Dr. Erwin said. ■

— Toni Baker

Trauma Center Grows Up

Treatment of trauma injuries was little understood in 1981, but time and education have changed all that.

Dr. Richard C. Treat has spent a fair amount of time traveling the country reviewing hospitals that want the distinction of becoming a trauma center.

He admits he's never found another hospital that went from not even having an emergency room to being a Level 1 trauma center.

But that's what happened at the Medical College of Georgia Hospital and Clinics.

When he came to MCG from Brooke Army Medical Center in July 1979, Dr. Treat took over the burn service at MCG.

But he made it clear to Dr. Arlie R. Mansberger Jr., chairman of the Department of Surgery, that he was very interested in trauma.

Dr. Treat was talking to the man who helped start the first trauma center in this country, the Maryland Institute of Emergency Medical Services Systems Inc.

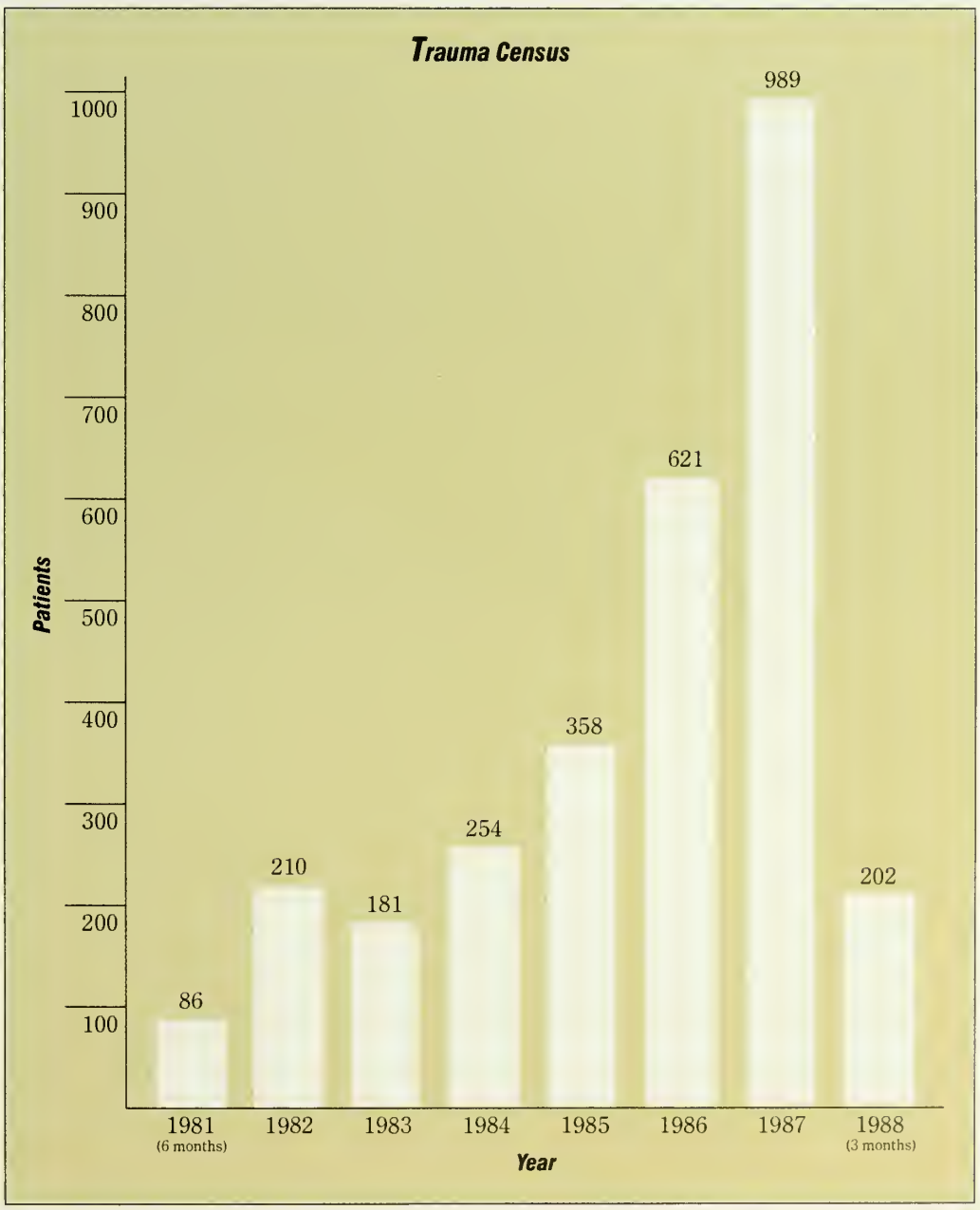
Theirs was a fortuitous marriage.

The offspring is Georgia's first Level 1 trauma center which opened its doors July 1, 1981, and received official designation from the East Central Georgia Emergency Medical Services Council as regional trauma center that October.

Today the offspring is outgrowing its home with a patient load that has multiplied five times in less than as many years.

"When the trauma center started, there was a grave concern we were going to take all the patients," Dr. Treat said. "As a secondary side to that was the concern that we were going to get all these elective patients who said, wow, I had an injury and I was treated great and I'm going there for all my medical care and there was going to be a shift in medical care in the community."

"We told people that wouldn't happen. They didn't



Dr. Richard C. Treat discusses a patient during rounds.

believe that. I can understand their concern. But it didn't happen. And now that they know it's not going to happen, we are actually seeing a shift of more trauma patients to us because they might be potentially injured.

"At one time, everyone wanted concrete proof that they were critically injured before they were shipped over to the trauma center," he recalled.

"People are now understanding the concept of potential significant injury," he said, explaining the basis for a patient population that climbed from 86 patients for the last six months of 1981 to 989 patients for calendar year 1987.

Trauma centers always have been intended for the small percentage of patients whose life-threatening injuries or whose method of injury put them at risk.

"Some of the most significant injuries we have had lately are people who might not have come here at all a couple of years ago and might not even come here today except under special circumstances," he said.

He recalled a recent automobile accident involving four people. One person was up walking and talking at the scene and came along for the ride to MCG Hospital.

"His aorta was torn," Dr. Treat said. "Had he not gotten to some place that promptly examined him, immediately performed an arteriogram and took him to the operating room, his chance of survival would have been much less." Instead, the patient is fine.

Marketing is another concept that has ignited growth.

Dr. Treat, chief of trauma/surgical critical care, and Dr. Michael Hawkins, trauma surgeon, spend a lot of time on the road visiting small hospitals, attending medical conferences, teaching pre-hospital care courses and talking to nurses, doctors and emergency medical technicians.

"You can't just go off and talk about it. We are getting the patients because we have gone out and worked to let people know what we can do, then we have come through and done exactly what we said we could do," Dr. Treat said.

July 1, a third trauma surgeon, Dr. Thomas Howdieshell, returns to MCG to round out the trauma service. Dr. Howdieshell is a graduate of the Medical College of Georgia who did his surgery residency at MCG and a trauma fellowship at the University of New Mexico.

All this growth and activity has taken a toll on a hospital never designed to handle trauma.

"We have made a commitment to responding to the need of the region to take care of trauma," said Richard R. Bias, associate hospital director for operations. "It requires a certain availability of space, equipment, personnel and resources to be able to do that job. We have gotten to the point where we are constantly at capacity, given our current space resources."

"We are committed to maintaining our activity in trauma, but to do it without negatively impacting on other services means more space and redesigned functions," he said.

Expanded emergency and trauma care capabilities will compose the lion's share of the specialized care center to be built adjacent to the existing MCG Hospital and Clinics.

Conceptual plans for the new facility are in hand and the design phase is underway with a tentative opening set for early 1991.

Now there are about 27,000 emergency room visits to MCG Hospital each year, including roughly a thousand categorized as trauma. MCG Hospital is projected to have 45,000 emergency room visits by 1995, and about the same percentage will be trauma patients.

Looking at those projections, plans call for a much-expanded emergency room and trauma resuscitation area on the first floor of the new specialized care center.

Trauma will have three major resuscitation areas consisting of three bays of about 225 square feet each with ceiling-mounted X-ray equipment for better images. An operating room completes the trauma area.

MCG now has one major

Dr. Michael Hawkins listens to an incoming trauma call.

trauma resuscitation room and portable X-ray equipment. Multiple critical trauma patients can be handled in the center simultaneously. Operating rooms are across a hallway.

"We are now fully meeting the patient care mandate. That mandate will be able to be met in a much more pleasant and efficient manner with the new building," Dr. Treat said.

"Currently we've taken care of as many as five or six patients (at one time)," Mr. Bias said. "So with this kind of capability, you are going to take as many as you can as long as you've got the staff for it.

"What we are doing is hopefully making a situation so that the resource of space is not a constraint," Mr. Bias said.

The ICU bed resource at times has been a significant problem for the trauma service. On a few occasions, no ICU beds has meant taking no new trauma patients, a situation that frustrates the trauma team.

"We don't have to close our doors just when there is a little ripple in the road," Dr. Treat said. "There are times when a huge number of prolonged intensive-care type patients limits ICU capabilities. But we don't close for convenience's sake and we don't close because we are a little bit busy."

The 12-bed Shock-Trauma ICU slated for the third floor of the specialized care center is designed to remedy the ICU bed shortage.

The ICU is scheduled to have four isolation rooms with appropriate physical separation and anterooms to wash, glove and gown, Mr. Bias said. The remaining eight beds will be in an open unit.

"We do feel comfortable that 12 beds in the future trauma ICU will accommodate our normal operating requirements. It would be the exception rather than the rule to have trauma patients in ICUs other than the trauma ICU. Now, it's absolutely the rule," Mr. Bias said.

Also handy is a 12-bed surgery ICU to be built across the hall from the trauma ICU. The plan is that any overflow from trauma could go there.

All told, construction and renovation projects scheduled for upcoming months and years will double the current ICU bed capacity of MCG Hospital.

As interim help, a six-bed intermediate care unit is being expanded to 12 beds and a seven-bed coronary care unit is scheduled to open in January.

The specialized care center will have other handy features such as larger-than-normal elevators for transporting patients for computed tomography (CT) studies and to the ICU.

A number of support and diagnostic services, such as pharmacy and a blood gas lab, will be located on or adjacent to the second floor of the specialized care center. Services such as a blood bank will be relocated adjacent to the new center.

Increased personnel and space expand many avenues for trauma.

One important aspect is an increased capability to teach the science of trauma care, Dr. Treat said.

Already the number of residents working simultaneously on the trauma service has grown from three to four with the potential for growing to six. Also medical students from MCG and from other medical schools are spending time on the service.

This exposure is important because many of these doctors will provide trauma care at hospitals that provide initial care, then refer patients to trauma centers. Or they may help staff designated trauma centers, Dr. Treat said.

Growth also permits expansion of research efforts. MCG already is the site for the country's only study of a natural protein called fibronectin which may help fight the effects of shock and sepsis.

Drs. Treat and Hawkins also are delving into a variety of projects designed to find better ways to treat trauma and related conditions.

"This facility has shown growth capacity," Dr. Treat said. "It will continue to show growth capacity to take care of patients and that is what should happen." ■

— Toni Baker

A Life Saved

The July day was fading in Washington County, Georgia.

Randy Smith and his mother-in-law Mildred Jackson were picking peas in the family garden.

Sandra Smith hung out a load of clothes and went to join them.

"I think we had emptied the bucket one time," Mrs. Smith recollected.

Within minutes Mr. Smith's wife of 19 years began to scream.

"Did I say I'd been snake bit? I don't even remember."

Mrs. Smith never saw the snake. But he left his calling card, fang marks about an inch and a quarter apart. Several days later, neighbors killed a large rattlesnake. It was the presumed culprit.

Mrs. Smith had heard somewhere that she shouldn't run. "I said 'Randy, you've got to carry me out of the field.' He looked at me and said, 'I can't.' We have laughed about that so much."

The husband ran for his pickup truck that was still full of fresh-picked corn. He drove up beside his wife, she got in and they rushed to Memorial Hospital of Washington County with a pair of panty hose tied around her leg and a half-gallon zip-lock bag of ice propped on the bite.

"I was scared," she said.

By the time the couple made it a few miles down the road, Mrs. Smith's lips were swollen and she was turning red. "I really didn't know whether I was going to get her to the hospital," Mr. Smith said.

"About the time we passed the McDonald's it was like somebody had set fire to my feet," Mrs. Smith said. "It came just straight out of my body and went out the top of my head. I mean it was like somebody had poured fire in me."

The staff at Memorial was waiting when the Smiths arrived. "By then I could barely even help myself out of the truck. I faded. I couldn't even breathe."

"I tried to get the doctor then to take her on to Augusta. I saw what shape she was in," Mr. Smith said. "He said no, she wouldn't make it to Augusta."

That was Tuesday. By Wednesday night her already bad condition had worsened. Then the doctor told him he had no choice but to move her.

"He said, 'Her lungs are collapsing and there is nothing I can do to stop it.'"

The critically ill woman made the hour-plus ride by ambulance to the Medical College of Georgia Hospital.

As soon as they arrived, Mrs. Smith disappeared in a flurry of people. Hours passed before Dr. Richard C. Treat emerged.

"He said her chances of living were very slim. I told him, I said, 'Doctor, the good Lord will do what he has to do and you do what you have to do.'"

Mr. Smith still remembers the first time he saw his wife in the Shock-Trauma Intensive Care Unit. She had tubes all in her. She was swollen.

"She looked like a big old balloon," he said. "It took a part out of me that won't never be replaced."

"Upon arrival here, she was in florid respiratory failure. Her lungs weren't working at all. Her heart wasn't working well so she was in shock," Dr. Treat said.

"Putting her on ventilatory support with 100 percent oxygen and special high-pressure ventilation, her oxygen level in her blood still was less than adequate.

"She required maximum doses of all kinds of drugs going in constant drip infusions to get her heart to barely beat enough to maintain life."

Normally one milliliter of adrenalin (epinephrine) is diluted in 1,000 milliliters of intravenous fluid. But Mrs. Smith required undiluted epinephrine drips.

"She was basically as close to being dead as you can be. We were in a maximum support situation," Dr. Treat said.

The snake's venom is a group of chemicals in solution made and stored by the snake. "Obviously its goal is to kill prey. That's how a rattlesnake eats. It bites animals and the venom acts as enzymes and toxins and breaks down tissue locally and damages tissue and causes absorption of different toxins that do different things," Dr. Treat explained.

"Some of them cause respiratory failure. They circulate through the blood and they damage the cell linings of the lungs. They do not allow normal metabolism to proceed in the body and that can

Sandra Smith counts herself lucky to have been the first trauma patient.

damage the heart. There are factors in there that cause red cells to break down and initiate clotting.

"Snake bites are very lethal and the total effect is the result of a ratio between the amount of venom and the size of the victim," he said.

In the years since, Dr. Treat has given up predicting outcomes on patients. Back then he still speculated and he thought Mrs. Smith could not survive.

"When we did everything we humanly had available to do to try to get her blood oxygen level up and it was still below the normal, accepted standard for maintaining life . . .," he trailed off.

The unusual case and treatment stirred interest in the hospital.

"People would come by and say, 'What are you doing that for? You can't do that. You can't give somebody undiluted epinephrine,'" Dr. Treat said.

Sandra Smith, first patient treated at the Medical College of Georgia Regional Trauma Center.

It was July 1981 and the MCG Regional Trauma Center was just a few days old.

In the two short preceding years MCG Hospital had gone from a hospital without an emergency room to the hospital with Georgia's first Level One trauma center for the most critically injured and ill.

Mrs. Smith was to be the first of many patients for whom the specialized trauma program made a difference.

"When we first started the trauma service, we hadn't seen major, critical trauma in this hospital," Dr. Treat said. "Nor had there been a fully organized, maximum approach specifically for the critical care of these types of patients.

"So, many new things were happening that people didn't understand. And, the natural history of most patients like this is that they didn't have a chance for survival," he said.

"Initially we met with curiosity, not suspicion, but kind of 'I don't understand what you are doing' because it had not been done here before. And there was concern from the point of view of are you going too far, are you kind of, not torturing people, but prolonging inevitable death and creating pain and expense in the process.

"You answer that by saying 'I understand why you feel that way, but this is the standard and this doesn't save everybody, but it offers everybody the maximum chance for survival,'" Dr. Treat said.

All the vigorous, extreme attention gained some response from Mrs. Smith.

Then a routine X-ray the next day showed she might have a perforated ulcer.

"We had to operate on her under those circumstances of nothing working right," Dr. Treat said. "Our hand was forced to operate on her and to make things, in a way, worse. Because now, in addition to all (her other problems), she had the additional stress of surgery."

Mr. Smith remembers the doctors coming to him that Friday night, remembers the grim picture they painted.

"That really hurt, not knowing if I was ever going to see her again. I didn't want anybody to be around. I picked my Bible up. I just went off by myself."

Mr. Smith waited out the long hours on a stretcher in the hallway.

"It was about 2 o'clock in the morning and they came out of two doors down there in the hall, just as happy and laughing. I said, my wife's all right. He said she made it all right. I said thank the Lord."

Mrs. Smith began to respond more from that point on. She was in the hospital for six weeks with four of those weeks spent in the then-new Shock-Trauma ICU.

Her husband remembers the day a nurse came searching for him, telling him she had something to show him. He came to the ICU and found his wife sitting up in a wheelchair.

Nearly seven years later, the whole experience is a significant memory, but a memory nevertheless.

Mrs. Smith has long since been back to her life of raising three children — Delene, Debra and Charles — and of being wife to Randy.

The machine shop where she works kept her secretarial job open while she was gone.

And out in back, the garden is growing as it has for many summers. ■

— Toni Baker

Teaming Up

A look at some less recognized members of the hospital health care team.

When Bob Stowers graduated from Berry College and started coaching high school sports, he thought he had realized his dream. Five years later he was looking for a way out.

Like many teachers, Mr. Stowers knew that supporting a family on his salary would be difficult. "I thoroughly enjoyed teaching, but I quickly realized that a person can't make a living teaching and coaching high school athletics," he said.

During college Mr. Stowers had a part-time job in a hospital and was vaguely familiar with physician assistants. His initial impression of the field was one of uncertainty. "It was a new field, and being a conservative, I was not interested in anything new," he said. Later, however, his idea of physician assistants would change.

Single and well into his 20s, Mr. Stowers thought a career in medicine was still a possibility. He began to look into medical school and other health-related occupations. Feeling he was too old to start medical school, he opted for the physician assistant program.

"By that time the P.A. programs around the country were better established and it was a lot more appealing to me," he said.

In the summer of 1981 Mr. Stowers was accepted at the Medical College of Georgia. He left his home in Rome, Ga., for the first time in his life and moved to Augusta.

Within a few months Mr. Stowers met Sherry Walz, but it wasn't until the following year that they began to date and decided to marry. Sherry, also a physician assistant, graduated with Mr. Stowers, and they both started jobs in their new profession. Later, they returned to work at the Medical College of Georgia.

Mr. Stowers sees his role at the Medical College as a link between patients and doctors. He evaluates the patient before heart catheterization, assists the cardiologist during the procedure and compiles data after the test is over.

"It's hard to say exactly what a physician assistant does because different states have different laws concerning the job description," Mr. Stowers said. Most of his days are spent evaluating patients and consulting with physicians. He offers his opinions on what treatment may be necessary.

Mr. Stowers especially enjoys working with the cardiology fellows who rotate through the heart catheterization lab where he works. "It is exciting to work with physicians learning the art of cardiology," he said.

The future of the physician assistant is bright, Mr. Stowers said. Many medical centers are using P.A.'s as housestaff and are coordinating their efforts with attending physicians.

"With the improvement of technology, I hope physician assistants will not become technicians or administrators," he said. "Most of us are in the profession because we like working with people, and I don't want that to change."

Students enter the two-year physician assistant program with at least two years of college behind them. The curriculum closely resembles studies during the freshman and junior years of medical school and includes courses such as anatomy and physiology.

During the first year, students spend most of their time in the classroom and work with a few patients doing physical exams. Second-year students rotate through various departments around campus, much like a junior medical student.

Before graduation, most P.A. students decide to do primary care or to specialize in one area. With some intense on-the-job training, a physician assistant can move from one specialized area to another.

"Many P.A.'s change fields at least

Bob Stowers with 16-month-old Ty and wife Sherry.

once in their professional life, just as my wife and I did," said Mr. Stowers.

An important part of the physician assistant's job involves patient education, Mr. Stowers said. He spends several hours a day explaining medical procedures and plans to patients. "We are sort of a link between the doctors and the patients," he said. "But that can work the other way around as well."

Sometimes through working with the patients, the physician assistant may uncover important information the patient has not told his doctor. Many patients get nervous around doctors and will not talk freely, Mr. Stowers said. Since the physician assistant may seem less intimidating, he may be able to get the patient to talk about things relevant to his case.

Mr. Stowers says he likes working at the Medical College of Georgia because of the emphasis placed on quality patient care. Some hospitals seem to be more interested in payment methods than in patient care, Mr. Stowers said, and that is a trend that worries him.

"When I see a patient, I don't have to worry about who he is insured by or whether he has money to pay his bill. All I have to do is help him get well."

The only part of his job that Mr. Stowers dislikes is the paper work. Cardiologists collect a lot of data which must be compiled for quick and accurate reference.

When he is not compiling data, teaching a patient or assisting in the heart catheterization lab, Mr. Stowers spends time with his 16-month-old son, Ty. Since Ty is his first child, every day is a new experience, he said.

Mr. Stowers also manages to fit in a little leisure activity. He works out every day at 6 a.m. and loves to play volleyball after work. And to him, the perfect weekend means time with his wife and son near the water.

The Stowerses enjoy water sports, and Thurmond Lake provides an ideal place for the family to spend a Sunday afternoon. Vacations almost always involve being near the water as well.

Mr. Stowers is proud of his career and his family. If he had to do it all over again, he said the only change he would make is starting a little sooner.

■

Learning to live with a disabling injury or disease is a true test of the human spirit. It is a challenge most of us will never have to face. But working with these victims is part of Donna Sanders's daily routine.

After high school graduation, Mrs. Sanders planned to attend college but had not chosen a major. An instructor first suggested occupational therapy.

"I was thinking about physical therapy, but my professor convinced me that occupational therapy would be better for me," Mrs. Sanders said.

Having successfully completed three years of college, Mrs. Sanders was accepted into the occupational therapy program at the Medical College of Georgia. For the next 24 months she grew to love her field, but wanted to continue her education beyond the baccalaureate level.

Three years after graduating from the Medical College of Georgia she moved to Gainesville, Fla., and entered the master's degree program in pediatric occupational therapy at the University of Florida. As much as she loved what she had been doing, working with children made it even better.

Since 1985 Mrs. Sanders has been back at MCG working with children — at first as teamleader for occupational therapy psychiatry and most recently as teamleader for pediatrics.

Mrs. Sanders enjoys her work, especially working with the child psychiatry patients. "We have a lot of kids who have been through child abuse in one form or another and I really like trying to give them another chance," she said.

Therapy work is often a slow process, and there is seldom any significant progress from one day to the next. Keeping a good attitude and appreciating small but gradual progress is a major part of the battle, according to Mrs. Sanders.

Occupational therapy and physical therapy are very similar, and both are used in rehabilitation. It is not unusual for patients to receive both treatments as part of their recovery.

Mrs. Sanders recalls how she explained the difference to her grandfather.

"If you had an accident," she said, "and you went to a physical therapist, she would make you lift weights. If you came to me, I would help you learn how to use your fishing pole again."

An occupational therapist teaches the patient new ways to perform everyday tasks or helps him regain the ability to do them. Patients are placed in ordinary surroundings and work on practical skills that most people take for granted.

Occupational therapist Donna Sanders sparks a reaction from a young autistic patient.

Many of the children Mrs. Sanders works with are experiencing emotional problems that prevent them from doing the most menial tasks. These patients are admitted for psychiatric intervention. Occupational therapy is one part of an integrated team approach.

The causes of some children's illnesses are unclear. Others' problems may result from a bad situation at home. "The most frustrating thing for me is working with a child knowing that the cause of the problem has not changed and that he will be going right back home to a bad situation," Mrs. Sanders said.

Patients seldom have a sudden turnaround, but it does happen. Mrs. Sanders can recall cases in which children made sudden breakthroughs. "It is always very exciting when it happens. We are used to slow progress and something like that is great," she said.

Occupational therapists are there to pick up where doctors leave off. When a patient has received all the help medically available, it is up to the therapist to help him continue to improve or to help him learn to live with a permanent disability.

Another important part of occupational therapy is keeping up morale. Patients need to have goals and a set time to work toward them, Mrs. Sanders said.

"You can tell when a patient is not feeling good or having a bad day. A big part of my job is to keep him on track and away from self-pity," Mrs. Sanders said.

Mrs. Sanders has no children of her own, but hopes to someday. Working daily with pediatric patients gives her a better understanding of the problems that many children have, she said.

■

Tina Hayes, assistant head nurse in labor and delivery, with a patient.

It was the love and compassion shown by a public health nurse that persuaded Tina Hayes to consider nursing as a career. That nurse worked in the small rural South Carolina town of Johnston. "I always admired the work she did and I wanted to contribute something to the world like she did," Ms. Hayes said.

Today, Ms. Hayes is about to enter her second decade on staff at the Medical College of Georgia, where she is assistant head nurse in labor and delivery.

Ms. Hayes first considered a job in health care when she was a high school senior. Initially her goal was to become a doctor, but imagining another 10 to 12 years of school turned her to nursing instead.

After a year at Clemson University, Ms. Hayes transferred to the University of South Carolina at Aiken. She finished an associate's degree and moved to Florence for a year of internship in nursing.

As an intern, Ms. Hayes rotated through a number of hospital services and found she was most fond of labor and delivery.

In 1978 Ms. Hayes moved to Augusta and took a position at the Medical College of Georgia. Here she decided to return to nursing school and earn a bachelor's degree.

"I had a good job here and I didn't want to give it up, so I started going to school part time," she said. She hopes to graduate in May 1989. After that she plans to begin work on a master's in health management.

Despite her aspirations in management, Ms. Hayes doesn't want to leave bedside nursing entirely. She says there is a unique feeling about being with a couple during the most special time of their lives.

"Seeing the look on the face of a new parent when they hold their new baby for the first time is something that you just can't describe," she said. "It never seems to get old."

There have also been a few surprises in the time that Ms. Hayes has been on staff at MCG. She recalls being in the delivery room when triplets were born and when a 13-pound baby boy was born last year.

"We all expected him to get up and walk off himself," she said. "I have seen smaller babies walk."

The labor and delivery service at MCG is always busy. Ms. Hayes cannot remember a time without patients on the unit. "We may go a whole day when we don't deliver, but there is always someone in the unit," she said.

During the past few years nursing has become more specialized and career oriented, Ms. Hayes said. "Conditions and working hours have also improved," she said.

Another change that has made labor and delivery nursing easier is improved methods of anesthesia. "These patients are really scared. We have all heard stories about how awful childbirth is and they are scared," Ms. Hayes said.

Sometimes patients are in labor for an hour and for others it may be several days. Those who do not deliver right away begin to require extra emotional support. "The ones who come right in and deliver right away are the lucky ones," Ms. Hayes said.

Ms. Hayes loves her job even though she admits that at times it can be very hard. "You see a lot of sad things and you see a lot of happy times," she said. "Sometimes things don't work out for the parents and that is very hard on all of us."

Most of her experiences in labor and delivery have been good ones, however. Ms. Hayes has a lot of good memories on 7-West and she plans on being around for a while.

As for having children of her own, Ms. Hayes seems a little unsure. "At one time I would have said that I didn't want children, but now I think I would like to have one," she said. She has never had time for marriage, she said, but that may change after she finishes school.

What little free time she has, Ms. Hayes likes to spend on the water. "I love boating, sailing, swimming and lying on the beach," she said. She also likes cooking and reading.

Ms. Hayes enjoys her life and says that a big part of that enjoyment is working at MCG. "It is the people that I work with that make this job fun and it is nice to have a job that you enjoy." ■

— David Waller

Lethal Life

Neonatologist works to reduce risk

He was a medical student fascinated by the physiology of babies born too soon.

"It was wonderful physiology. It was spectacular to see that these tiny little kids could, in fact, pump blood around their bodies," said Dr. Spencer Brudno. "And it was amazing to see that when their lungs failed, you could do something about it."

But his wonder at mechanical ventilation of the very premature baby dulled as his knowledge grew.

As a pediatric resident and later a neonatology fellow, Dr. Brudno began to realize how toxic a process it could be to force air into immature lungs.

So began a career-long interest in understanding and fine-tuning this often vicious cycle of babies needing assistance to breathe yet suffering the side effects.

"When the baby is born early, something has to take over the work of the placenta," explained Dr. Brudno, now a neonatologist at the Medical College of Georgia.

The placenta's first job is oxygenation, getting oxygen into the growing fetus's bloodstream and removing carbon dioxide. The fetus's immature lungs are not yet needed for that task.

The placenta filters out most waste products, so the fetus's kidneys have an easy time of it in utero.

Stimulation of the fetal brain is limited, so that most of the energy requirements are for growth.

And so other organs also continue to develop until the moment of premature birth.

"Once outside the uterus, it's no longer a walk in the park," Dr. Brudno said.

"There is almost no organ of the body that is ready, with the exception of the heart, which is probably the strongest organ," Dr. Brudno said.

"The baby actually has to do work, which means getting the right salts out of the body through the kidneys, getting the breakdown by-products of metabolism excreted by the kidneys and liver and keeping the water balance stable. The liver is the major detoxifying organ of the body and if it's not working right, the baby can suffer from toxic levels of the by-products of metabolism.

"So if you are born premature, you are in trouble," Dr. Brudno said.

That's where neonatal intensive care units and neonatologists come in.

"There really is one objective in taking care of small, premature infants," he said. "That is maintaining their system until they have developed. You want to do as little damage as possible but still allow them to get adequate nutrition and to get adequate oxygen into the bloodstream. Then you wait."

But the inevitable catch 22 is that the same actions taken to support life also can cause harm.

"I was struck with how incredibly cruel these ventilators are," Dr. Brudno said. "If airway pressure is high enough, air sacs can, in essence, explode. If the

Support?

acing newborns on ventilators.

explosion is big enough, it can blow a hole in the lungs causing gas to go into the wrong places.

"Although it's a small percentage, some babies' lungs are damaged to the point that they cannot come off the ventilator," he said.

"The lungs aren't ready. They don't stay open well enough. The little air sacs

Dr. Spencer Brudno tests an infant patient in Medical College of Georgia Neonatal ICU.

don't have the right chemicals to keep them open. They don't get blood flow going to them in anywhere near the normal fashion. And, they are very susceptible to damage.

"So we put these kids on ventilators anyway. You don't have any choice. If you want the small premature baby to survive who has any degree of premature lung disease, he needs mechanical ventilation," Dr. Brudno said.

Today's ventilators, though light years ahead of early forms of ventilatory support, still pound fragile immature lungs with air. "You are driving gas at high pressure into lungs that are nowhere near ready to accept it," he said.

"Inside the lungs, air moves into the millions of airs sacs called alveoli. These alveoli are remarkable," Dr. Brudno said.

On the surface of the alveoli an important exchange occurs. On one side of the surface is the air space. On the other side are tiny blood vessels.

Oxygen from the air crosses the alveolar surface and moves into the bloodstream where it can circulate to the body. The circulating carbon dioxide crosses the alveolar surface in the opposite direction to be exhaled from the mouth, he said.

"You're talking about converting from a gas phase to a liquid phase instantaneously. With every breath you are doing something remarkable," he said.

"That is one of the reasons I am so excited about doing lung studies with babies. Because this is such an enormously elaborate process and we take it for granted," Dr. Brudno said.

He is studying this process with MACC and Myrtle.

MACC—Mobile Automated Cardiopulmonary Computer—is his creation, a hodgepodge of heavy machinery that stands as tall as a filing cabinet.

MACC can determine a baby's total air space and the amount of surface area where oxygen transfers into the blood and carbon dioxide transfers out.

MACC determines functional residual capacity, the sum of all air sacs. This space must be adequate for appropriate gas exchange. MACC also can tell how fast the oxygen moves from the air sac to the bloodstream, how much blood goes to the blood vessels lining the air sacs and how much water is in the lungs.

Myrtle, another large testing device, examines pulmonary mechanics: how much gas is moving in and out of the

Dr. Spencer Brudno with respiratory care practitioners Donald Parker (right) and Glenn Slaton.

lungs. It measures airway resistance and lung compliance to determine lung elasticity.

All of these points and measures are made with the hope of improving administration of lifesaving ventilator support.

"Right now we are documenting what happens in a situation where a baby has premature lung breathing problems," Dr. Brudno said. "We are coming up with a very complicated descriptive model of what happens in the lung. Every 12 hours for seven days we do MACC and Myrtle measurements on these children.

"No one has ever described what happens with premature lungs in this much detail. If we understand what happens, we can understand the pathology and what should be the focus of intervention," he said.

As Dr. Brudno works with respiratory care practitioners Donald Parker and Glenn Slaton to document what happens in these premature lungs, the infant patients in the MCG Neonatal ICU already benefit from the detailed information MACC and Myrtle provide.

"Myrtle tells how much gas is moving in and out of the lungs," Dr. Brudno explained. "The minimum levels at which you don't get good excretion of carbon dioxide may mean increasing the ventilator settings to achieve that volume. Myrtle tells you about airway resistance, the resistance to flow of gas through the tubes leading to the air sacs. The ventilator may not be driving the breath in for a long enough period of time to distribute gas appropriately because of high resistance. That is important to know. If you give a little more time and you get more gas in, you may be able to reduce the pressure and decrease the toxicity of the ventilator," he said.

MACC and Myrtle are taking some of the guesswork out of ventilator support for premature infants.

"It's a funny notion," he says. "I like the art of neonatology and what I'm trying to do is make more of a science of neonatology."

But the result should help fine-tune the important task of supporting the breathing of premature babies so it does the most good with the least harm.

Good clinical neonatologists now use experience and often trial and error to provide optimal ventilator support for these babies.

"I think I am a good clinician. I could get by without Myrtle. But I like being able to turn the ventilator to the lowest possible pressure," he said.

Today in the MCG Hospital and Clinics Neonatal ICU, Myrtle is brought in for babies on very high ventilator settings.

"You can see how things get worse and how they get better, even to the point of predicting whether the baby is likely to come off the ventilator support at that point in time," Dr. Brudno said.

The young neonatologist's immediate research goal is to perform MACC and Myrtle studies on 20 patients with respiratory distress syndrome.

But that is only the beginning. Many other lung problems, besides garden variety respiratory distress, affect newborns.

"There has got to be a better way," Dr. Brudno said. "We have got to understand respiratory failure better." ■

— Toni Baker

Planned Giving

The family and friends of the late Dr. William Franklin Peacock Jr. of Bartow, Fla., recently established an endowed scholarship fund in honor of Dr. Peacock's father, Dr. William Franklin Peacock Sr., an 1885 graduate of the Medical College of Georgia.

Mellena Bridges was the first student to receive the award at the School of Medicine Honors Day in April.

Mrs. Louise Morris Peacock said the senior Dr. Peacock's life was primarily influential in her husband's decision to become a physician. In turn, two of their sons, Dr. John Morris Peacock of Lakeland, Fla., and Dr. William Franklin Peacock III of Denver, followed in their father's footsteps. Now her grandson, Dr. William Franklin Peacock IV of Detroit, is a senior resident in emergency medicine at the William Beaumont Hospital in Royal Oak.

Contributions may be made to the Peacock Family Medical Scholarship through the Medical College of Georgia Foundation. Students entering the School of Medicine at the college are eligible for the award. ■

—Bruce Howerton

Mrs. Ina Melle Todd Kelly, 92, widow of former Medical College of Georgia President Emeritus G. Lombard Kelly, died March 18 at Bon Air Life Care Center.

Mrs. Kelly, a native of Laurens County, S.C., lived in Augusta for 83 years. She was a member of Greene Street Presbyterian Church and a life member of the Women's Auxiliary to the Richmond County Medical Society and the Medical College of Georgia Faculty Wives Club.

Survivors include two daughters, Margaret Kelly DeVaughn and Mrs. Daniel B. (Georgia Ann Kelly) Sullivan, both of Augusta; and a son, George Lockwood Kelly, Atlanta.

Memorials may be made to the Medical College of Georgia Foundation for the Old Medical College renovation. ■

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